What is claimed is:

1. A method for measuring a surface profile of a test surface of an object, comprising:

measuring a phase distribution of interference fringes, with respect to the test surface, produced by interference of a measurement light beam, reflected from the test surface, and a reference light beam having a prescribed wavefront profile;

measuring a phase distribution of interference fringes, with respect to a reference standard, produced by interference of light reflected from the reference standard and the reference light beam;

measuring a phase distribution of interference fringes, with respect to a verification standard, produced by interference of light reflected from the verification standard and the reference light beam;

computing a profile difference from the phase distribution of interference fringes produced with respect to the test surface, and the phase distribution of interference fringes produced with respect to the reference standard; and

correcting the profile difference, from design-mandated data for the reference standard, of the test surface measured with respect to the reference standard;

wherein (i) the corrected profile difference is expressed as a respective rotation-symmetry-error component and a respective rotation-asymmetry-error component, (ii) the rotation-symmetry-error component is expressed as a high-order component of rotation-symmetry error and a low-order component of rotation-symmetry error, and (iii) the high-order component of rotation-symmetry error is computed by extracting the high-order component of rotation-symmetry error from a difference between the phase distribution of interference fringes with respect to the verification standard and the phase distribution of interference fringes with respect to the reference standard.

2. The method of claim 1, wherein the verification standard is a reflection-type diffraction optical element or an element group comprising a reflection-type diffraction optical element and an optical element.

3. The method of claim 1, wherein the low-order component of rotation-symmetry error is one or more terms, of an even-numbered exponential series pertaining to coordinates on the test surface, of fourth order or less.

4. The method of claim 1, wherein the low-order component of rotation-symmetry error is one or more terms, of an even-numbered exponential series pertaining to coordinates on the test surface, of sixth order or less.

5. The method of claim 1, wherein the test surface is an aspheric surface.

6. A method for manufacturing an optical element, comprising a surface-profile measurement method as recited in claim 1 for measuring a profile of a surface of the optical element.

7. A method for measuring a surface profile of a test surface of an object, comprising:

measuring a phase distribution of interference fringes, with respect to the test surface, produced by interference of a measurement light beam, reflected from the test surface, and a reference light beam having a prescribed wavefront profile;

measuring a phase distribution of interference fringes, with respect to a reference standard, produced by interference of light reflected from the reference standard and the reference light beam;

measuring a phase distribution of interference fringes, with respect to a verification standard, produced by interference of light reflected from the verification standard and the reference light beam;

computing a profile difference from the phase distribution of interference fringes produced with respect to the test surface and the phase distribution of interference fringes produced with respect to the reference standard; and

correcting the profile difference, from design-mandated data for the reference standard, of the test surface measured with respect to the reference standard;

wherein (i) the corrected profile difference is expressed as a respective rotation-symmetry-error component and a respective rotation-asymmetry-error component, (ii) the rotation-symmetry-error component is expressed as a high-order component of rotation-symmetry error and a low-order component of rotation-symmetry error; and (iii) the high-order component of rotation-symmetry error is computed by extracting the high-order component of rotation-symmetry error from a difference between the phase distribution of interference fringes with respect to the verification standard and the phase distribution of interference fringes with respect to the reference standard, and correcting the high-order component of rotation-symmetry error from the design-mandated data for the verification standard.

8. A method for measuring a surface profile of a test surface of an object, comprising:

measuring a phase distribution of interference fringes, with respect to the test surface, produced by interference of a measurement light beam, reflected from the test surface, and a reference light beam having a prescribed wavefront profile;

measuring a phase distribution of interference fringes, with respect to a prescribed verification standard, produced by interference of light reflected from the verification standard and the reference light beam; and

computing a profile difference from the design-mandated data for the test surface, the profile difference including a rotation-symmetry-error component and a rotation-asymmetry-error component, the rotation-symmetry-error component including a high-order component of rotation-symmetry error and a low-order component of rotation-symmetry error, the high-order component of rotation-symmetry error being computed by extracting said high-order component from a

difference between the phase distribution of interference fringes with respect to the verification standard and the phase distribution of interference fringes with respect to the test surface.

9. The method of claim 8, wherein the verification standard is a reflection-type diffraction optical element or an element group comprising a reflection-type diffraction optical element and an optical element.

10. The method of claim 8, wherein the low-order component of rotation-symmetry error is one or more terms, of an even-numbered exponential series pertaining to coordinates on the test surface, of fourth order or less.

11. The method of claim 8, wherein the low-order component of rotation-symmetry error is one or more terms, of an even-numbered exponential series pertaining to coordinates on the test surface, of sixth order or less.

12. The method of claim 8, wherein the test surface is an aspheric surface.

13. A method for manufacturing an optical element, comprising a surface-profile measurement method as recited in claim 8 for measuring a profile of a surface of the optical element.

14. A method for measuring a surface profile of a test surface of an object, comprising:

measuring a phase distribution of interference fringes, with respect to the test surface, produced by interference of a measurement light beam, reflected from the test surface, and a reference light beam having a prescribed wavefront profile;

measuring a phase distribution of interference fringes, with respect to a verification standard, produced by interference of light reflected from the verification standard and the reference light beam;

computing a profile difference from the design-mandated data for the test surface, the profile difference including a rotation-symmetry-error component and a rotation-asymmetry-error component, the rotation-symmetry-error component including a high-order component of rotation-symmetry error and a low-order component of rotation-symmetry error, the high-order component being computed by extracting said high-order component from a difference between the phase distribution of interference fringes with respect to the verification standard and the phase distribution of interference fringes with respect to the test surface, and correcting the high-order component from the design-mandated data for the verification standard.